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METHOD OF OPERATION

Panel System - Local Test Desk No. 12-B - Test Circuit - Supplementary Test Features

DEVELOPMENT

1. PURPOSE OF CIRCUIT

1.1 These supplementary features are used in connection with the testing cord circuit in testing subscribers lines and stations.

2. WORKING LIMITS

2.1 E1722 relay:

Operate - maximum external loop resistance 750 ohms.
Release - minimum external leak resistance 10,000 ohms.

OPERATION

3. PRINCIPAL FUNCTIONS

3.1 Figure 1 provides for testing the relays in subscribers' party line instruments.

3.2 Figure 2 provides for testing the operation of the coin relays in the prepay coin machines.

3.3 Figure 3 provides a line insulation breakdown test.

3.4 Figure 4 provides for testing coin control and relays in subscribers' sets.

3.5 Figure 5 is a combination of figures 1 and 3.

3.6 Figure 6 is a combination of figures 2 and 3.

3.7 Figure 7 is a combination of figures 1, 2 and 3.

4. CONNECTING CIRCUITS

4.1 Standard test circuit, local test desk No. 12-B.

DESCRIPTION OF OPERATION

5. CIRCUIT OPERATION

FIGURE 1

5.1 Testing Subscriber's Subset Relay Equipment

When subscriber's sets of the relay type are used on four-party lines, this feature is provided in the testing circuit at the test desk to check the operation of the relay equipment in the substation sets. When the "SSRT" key is operated ringing current is connected to ground through the repeating coil, and the induced ringing current is transmitted over the line to the subscriber's station. With the volt-milammeter of the testing circuit connected to the subscriber's line observation of the deflection of the instrument will show whether the ring-up relay in the subset has properly operated, so as to connect the bell into the line circuit.

FIGURE 2

5.2 Testing Coin Control

When coin box lines are connected to the office in which the test desk is located, the coin control feature is provided in the testing circuit. The operation of the (CC) key (a) operates the (C) and (B) relays, in series, (b) opens the ring conductor, (C) opens lead "H", "A" wiring and (c) after the operation of the (C) and (B) relays connects coin control battery of positive polarity to the tip of the line through the milammeter winding of the volt-milammeter in the test circuit. The operation of the (CR) key, (a) operates the (CR) and (B) relays in series, (b) opens the ring conductor, (c) opens lead "H", "A" wiring, and (c) after the operation of the (CR) and (B) relays connects coin control battery of negative polarity to the tip of the line through the milammeter winding of the volt-milammeter in the test circuit. For either polarity the direction of current flow is such that the volt-milammeter deflection is in the same direction.

Where "B" wiring is used in place of "A" wiring, lead "H" is opened at relay (B) only and the coin current is carried thru a make contact of relay (B). This permits the coin current both positive or negative to connect to the line only through the rheostat and meter regardless of any spring sequence or speed of operation of either key (CC) or (CR).

FIGURE 3

5.3 Test on Breakdown of Line Insulation

The 200 volt potential necessary for this test is obtained by adding the 100 volt battery of dry cells in series with the 100 volt test battery. To make the test the spring actuated (BT) key is operated and allowed to return to normal.

5.31 When contact "A" operates, the (BT), (B) or (BT1), and (C) or (BT2) relays operate in series, connecting ground to the ring conductor, and ground to the tip conductor through non-operated contact "B" the 38-A resistances (96,000 ohms) and the milammeter winding of the volt-milammeter.

5.32 When contact "B" operates, ground is disconnected and the 200 volt battery potential is connected to the tip of the line through the 38-A resistances and volt-milammeter.

5.33 When contact "C" operates, the 38-A resistances are short-circuited, connecting the 200 volt potential directly to the line through the milammeter winding of the volt-milammeter. Contact "C" remains operated for 6 seconds. During this interval the deflection of the volt-milammeter reading is observed. If the needle deflects in excess of .020 ampere, it indicates trouble.

5.34 The contacts return to normal in the reverse order to their operation, and each contact performs the reverse function on its return to normal to that performed on its operation. The contact "A" returned to normal, releases the (BT), (B) or (BT1) and (C) or (BT2) relays, restoring the circuit to normal. The total time of operation of the key is 10 seconds. To test the ring side of the line the reverse key in the test circuit is operated, and the insulation breakdown test (BT) key again turned to its operative position.

FIGURE 8

5.4 Testing Line Relays on Coin Prepayment Lines

With the (LRP) key normal, the operation of a (3WO) key in the test cord bridges a 750 ohm retardation coil across the tip and ring of the test cord to operate the line relay, and opens the sleeve lead, preventing operation of the line cut-off relay. When the (LRP) key is then operated, the tip side of the line is opened

and a 47-Y retardation coil (2000 ohms) is connected to the ring side of the line, to test the operation of the line relay and coin prepayment line.

FIGURE 9

5.5 Audible Signal on Intermittent Trouble

When the sounder cord of the test circuit is connected to a "line in trouble" the (BR) relay operates, operating the (B) sounder through the normal contacts of the (BG) key. When the (BG) key is operated, the (B) sounder will operate upon the release of the (BR) relay giving an audible signal that the trouble has been cleared.

5.6 FIGURE 4 is a combination of figures 1 and 2 and functions as previously described in paragraphs 5.1 and 5.2.

5.7 FIGURE 5 is a combination of figures 1 and 3 and functions as previously described in paragraphs 5.1 and 5.3.

5.8 FIGURE 6 is a combination of figures 2 and 3 and functions as previously described in paragraphs 5.2 and 5.3.

5.9 FIGURE 7 is a combination of figures 1, 2 and 3 and functions as previously described in paragraphs 5.1, 5.2 and 5.3.